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**EP-A- 0 063 472**  
**GB-A- 1 534 680**  
**GB-A- 2 181 738**  
**US-A- 4 655 957**

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**Description**Background of the Invention

## 5 (1) Field of Invention

This invention relates to liquid, aqueous, stable, effective, safe, non-scratching hard surface cleaning compositions commonly referred to as scouring cleansers. The compositions are physically stable, do not separate, whereby the user is assured of the optimum performance to be expected from the various  
 10 components and their amounts and ratios with respect to one another, are safe and do not scratch the usual surfaces to be cleaned, such as glass, porcelain, ceramic, plastic, metal, wood, painted wood (enamelled and lacquered).

## (2) Prior Art Discussion

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The art is, of course, replete with liquid scouring compositions alleged to perform in a safe and effective manner, others stated to be physically and chemically stable and so on.

Some examples of prior art scouring compositions include U.S. Patent 4,005,027 which describes compositions which include clay and insoluble abrasive. Only inorganic abrasives are shown. The composi-  
 20 tions include surfactants which are bleach stable. Nonionics are not used. It is alleged that the products are physically stable and also do not "appreciably run along vertical surfaces" (column 10, lines 45-47). Such stability is a manifestation of a false body fluid formed when using the smectite and attapulgite clays necessary in such compositions. In U.S. Patent 4,116,849 the compositions are very similar to those in U.S. Patent 4,005,027. In addition, U.S. Patent 4,116,849 discloses thickening agents instead of the preferred  
 25 smectite and attapulgite clays, such as colloidal silica, polystyrenes, sulfonated polystyrenes, polyethylene, oxidized polyethylenes, polypropylene, copolymers of styrene with methacrylic acid, methyl or ethyl acrylate, vinyl acetate, among others; patentee states that "...ethoxylated nonionic surfactants are to be avoided." Neither of these two patents disclose soaps or fatty acids as suitable materials as well. U.S. Patent 4,240,919 describes compositions of multivalent stearate soap, water and water-insoluble abrasive.  
 30 Various abrasives are disclosed and among the "organic" types are "melamine, urea formaldehyde resins, ground rigid polymeric materials, such as polyurethane foam..." (column 3, lines 10-12). Optionally, there may be present "substantially any surfactant materials which are compatible with the other components in the composition of the present invention...." These include water-soluble anionic, nonionic, amphoteric, cationic and zwitterionic surfactants." (column 3, lines 57-62). Further reference is made to U.S. Patents  
 35 4,051,056 (expanded perlite as abrasive), 4,457,856 (polyacrylate abrasive), German 1,956,616 (polyvinyl chloride as abrasive), 3,645,904 (skin cleanser containing polymer abrasive material).

GB-A-1 534 680 (corresponding to US 4 302 347) discloses liquid aqueous compositions suitable for cleaning hard surfaces which compositions comprise sulfonate or sulfate surfactants, nonionic detergents (hydrophobe condensed with ethylene oxide), an electrolyte, a fatty acid and an abrasive. This reference,  
 40 however, only shows natural abrasives such as feldspar, calcite or silica. Polymeric abrasives are not suggested. The compositions of this reference may be produced by any of the techniques commonly employed in the manufacturing of liquid detergent compositions.

GB-A-2 181 738 relating to a stable liquid detergent composition discloses a list of water insoluble abrasives including many inorganic abrasives and also mentions powders of plastics as polystyrene,  
 45 polyacrylate and nylon. However, all examples given use silica powder as the abrasive. This document is silent with regard to the method of preparation of the detergent composition. The authors of this document clearly were not aware that it is difficult to prepare a stable aqueous dispersion of polymers as e.g. polystyrene particles.

US 4 655 957 relating to a composition having utility as a contact lens cleaner without scratching the  
 50 lens surface suggests particulate organic polymer of a hydrophilic nature from the group consisting of poly(hydroxyalkyl methacrylate), poly(hydroxyalkyl acrylate), and poly N-vinyl lactam or mixtures thereof.

A composition manifesting the optimum desiderata for a non-scratching, stable, effective and safe aqueous scouring cleanser has eluded the art. The ability to remove most stains from all normally encountered hard surfaces and particularly plastic surfaces without damaging such delicate plastic materials  
 55 as one might find as, for example, kitchen counter tops, anti-stick coatings on metal pots, polystyrene, polymethyl methacrylate, polyvinyl chloride, nylon, polyester (e.g. fiberglass) and the like articles is the major thrust of this invention. In addition to removing stains, the composition should have good degreasing characteristics as well. Physical stability as demonstrated by the prior art cited above is a major problem

and for good consumer acceptability is a must.

Accordingly, it is an object of the present invention to provide a method for preparing a stable, liquid, aqueous, abrasive-containing cleaning composition which composition is safe and also substantially non-scratching on most encountered surfaces, including plastic surfaces.

5 It is a further object of the invention to provide the compositions made by the method of the invention.

Other objects will appear hereinafter as the description proceeds.

#### Description of the Invention

10 The objects of this invention are obtained in accordance with the following description by a method for preparing a stable liquid non-scratching aqueous, scouring cleansing composition comprising a fatty acid and/or fatty acid soap, non-soap anionic surfactant, nonionic surfactant, electrolyte and particulate abrasive and by the compositions obtained.

The fatty acid component may be any fatty acid having a carbon chain of from about C<sub>6</sub>-C<sub>30</sub> with C<sub>8</sub>-C<sub>20</sub> preferred. Most preferred are C<sub>10</sub>-C<sub>18</sub> and typically, naturally occurring materials, such as coconut oil, palm kernel oil, and animal tallow, serve admirably as sources for the fatty acids. A particularly preferred range of fatty acids is C<sub>12</sub>-C<sub>18</sub> as one would find in coconut oil. A typical coconut oil fatty acid composition contains about 50% C<sub>12</sub>; 20% C<sub>14</sub>; 8.5% C<sub>16</sub>; and 10% C<sub>18</sub> the balance other acid and even perhaps some neutral material, and is a liquid at 40°C. While the most convenient sources are natural oils or fats yielded, 20 mixed acids, of course, the individual specific acids, and indeed any mixture of any number and chain length of acids within the parameter of C<sub>6</sub>-C<sub>30</sub> may be used. The soaps used are the alkali metal and ammonium salts with sodium and potassium preferred. The fatty acid comprises from about 0.5 to 15% by weight and preferably 1 to 10% and, more preferably 1 to 7% of the composition.

The non-soap anionic surfactants contain a C<sub>10</sub>-C<sub>20</sub> linear aliphatic hydrocarbon chain and are selected 25 from the group consisting of sulfonate and sulfate surfactants. They may be chosen from any of the conventional anionics, such as the alkyl benzene sulfonates, the alkyl sulfates, alcohol sulfates, the alcohol ether sulfates, olefin sulfonates, paraffin sulfonates, fatty acid monoglyceride sulfates, taurides and the like as alkali and ammonium salts.

The preferred non-soap anionic surfactants are the paraffin sulfonates (C<sub>10</sub>-C<sub>20</sub>); the linear alkyl 30 benzene sulfonates, the alcohol and the alcohol ether sulfates.

The most preferred anionics (non-soap) are the C<sub>12</sub>-C<sub>18</sub> paraffin sulfonates in the form of their alkali metal or ammonium salts; C<sub>12</sub>-C<sub>16</sub> alkyl benzene sulfonates; the alkyl (i.e. alcohol) sulfates of C<sub>12</sub>-C<sub>18</sub> and the corresponding ether sulfates with 3 to 50 (e.g. 3, 5, 10, 20, 30 or 50) moles of condensed ethylene oxide. The most preferred salt forming cation is sodium. The amount of the non-soap anionic is in the range 35 of from 1 to 15% by weight, preferably 1 to 10% and more preferably 1 to 5% by weight.

Some specific examples of suitable anionics are sodium lauryl sulfate, sodium paraffin (C<sub>14</sub>-C<sub>17</sub>) sulfate, sodium decyl sulfate, sodium tridecyl sulfonate, sodium tallow alkyl sulfate, sodium coconut alkyl sulfate, sodium oxotridecyl-(triethoxyl) [sulfate (sulfated - 3 E.O. condensate with oxotridecyl alcohol), sodium dodecyl benzene sulfonate, sodium tridecyl benzene sulfonate, sodium tetradecyl benzene sul- 40 fonate and sodium (C<sub>15</sub>) olefin sulfonate.

The nonionic surfactants which are usable herein contain a C<sub>10</sub>-C<sub>20</sub> aliphatic hydrocarbon chain and have the molecular configuration of an hydrophobe condensed with ethylene oxide, the number of oxyethyl groups in the nonionic surfactant ranging from 1 to 8. The hydrophobe may and preferably is from an alcohol (preferably C<sub>10</sub>-C<sub>16</sub>, typically a C<sub>13</sub> alcohol, such as linear tridecyl alcohol), or a polypropylene backbone. Other hydrophobes, such as thioalcohols, acids, amines and the like may also be used. The preferred alcohol is a C<sub>10</sub>-C<sub>16</sub> alcohol with 1 to less than 5 moles of ethylene oxide and most preferably 2 to 4 moles of ethylene oxide, typically 3 moles of ethylene oxide. The level of nonionic in the formulation is varying from about 0.5% to about 15% by weight with preferred levels ranging from 1 to 10% and most preferred from about 3.5 to 6.5% typically and most highly preferred is 5%.

50 The electrolyte used herein is typically an alkaline, builder-type inorganic or organic salt. The usual salts comprise the alkali metal bicarbonates, borates, carbonates, phosphates, polyphosphates and silicates among the inorganics and the polycarboxylates, such as polyacetates, tartrates, citrates, maleates, oxydiacetates, alkenyl succinates, carboxymethyloxy succinates, oxydisuccinates and the like, among the organics. Polymeric builder salts, such as the water-soluble salts of polymers of maleic acid, itaconic acid 55 and the like, may be used as well as copolymers and interpolymers thereof with polymerizable  $\alpha,\beta$ -ethylenically unsaturated compounds, such as vinyl ethers, esters, alkyl alcohol, acrylic and methacrylic acid and esters thereof, etc.

The electrolyte may vary over a considerable range from as little as 0.5% to 25%. A preferred range is from about 2% to 15%; typically a mixture of carbonate and phosphate may total 5 to 10%; other convenient and preferred mixtures may comprise carbonate, polyphosphate and optionally some silicate in amounts of from 5 to 10% as well.

Specific electrolytes include sodium and potassium carbonate, sodium and potassium bicarbonate, sodium and potassium sesquicarbonate, sodium and potassium orthophosphates, pyrophosphates, tripolyphosphate and hexametaphosphates, sodium and potassium tetraborate anhydrous, pentahydrate, decahydrate, sodium silicate (e.g. sodium metasilicate or other silicates with the  $\text{Na}_2\text{O}$  to  $\text{SiO}_2$  ratio ranging from 3.5 to 1 to 1:1) as illustrative of the inorganics and ethylenediamine tetraacetic acid tetrasodium or potassium salt, trisodium nitrilotriacetate, disodium polymaleate, and the like, as merely illustrative of the organics.

The abrasive may be any particulate abrasive being a solid polymerisate derived from polyethylene, polypropylene, polystyrene, polyester, polyvinyl chloride, polyvinyl acetate, polymethyl methacrylate and various copolymers and interpolymers of the foregoing. The criteria for suitability are that the material does not have a hardness greater than homopolymeric polymethyl methacrylate and therefore does not scratch the same and that the average particle size ranges from 10 to 150  $\mu\text{m}$  and preferably from 25 to 100  $\mu\text{m}$  and most preferably from 30 to 75  $\mu\text{m}$ , e.g. 60  $\mu\text{m}$ . For optimum performance it is most desirable to utilize a polyvinyl chloride abrasive powder whose average particle size is about 60  $\mu\text{m}$ , with a major amount being within the range of 30 to 75  $\mu\text{m}$ . The molecular weight ranges of the polymeric abrasives may vary widely just so long as the physical properties set out above are met. Generally, molecular weights will range from several thousand (e.g. 2,000; 5,000; 20,000) to several hundred thousand (e.g. 125,000; 250,000; 400,000) and upwards of several million (e.g. 1,000,000; 2,000,000; 4,000,000; 6,000,000). The amount of abrasive ranges from about 2% to 30% or more - (e.g. 40%; 50%). A preferred range in the preferred formulations is from 5 to 25% and more preferred is a range of 5 to 15%, such as 7%; 10%; or 12%.

A large variety of optional ingredients may be included in the formulations of this invention. Some are even preferred, such as inorganic viscosity modifiers (e.g. montmorillonite clays, such as bentonite; attapulgites, etc.); organic ones, such as methylcellulose, carboxyl methylcellulose, hydroxy propylmethylcellulose. Such materials are particularly advantageous for a "cream" scouring cleanser where a "thickened" type of material is desired by the consumer. For such products it may be desirable to have viscosities ranging from several hundred (250 mPas; 400 mPas; 500 mPas) to several thousand (e.g. 1,100 mPas; 1,500 mPas; 2,000 mPas, etc.).

It is extremely significant that the formulations of this invention exhibit unusual stability (i.e. lack of or minimum phase separation) in the absence of the viscosity "elevators," their major function as mentioned above to merely thicken. The amount of the viscosity modifier ranges from 0.1 to 5 to 10%; usually 0.5 to 3%. Other optional but, again, preferred additives include a hydrocarbon material, particularly a terpene, such as d-limonene. Such terpenes are readily available in many perfume materials which are generally added to most consumer cleaning products. The amounts of the hydrocarbon vary from 0.05 to 5% and preferably from 0.1 to 2 to 3%. Other additives which may be used include bleaches (liquid and solid hypochlorites, available, e.g. as NaOCl solution or calcium hypochlorite powder; chloramines, chlorinated di- and trisodium phosphates, sodium and potassium dichlorisocyanurate, trichlorocyanuric acid, and so forth); buffers, caustic soda; caustic potash; suds boosters; enzymes; preservatives; disinfectants; colorants; fragrances and the like, may be used where desired and compatible. Generally, minor amounts of such auxiliary materials are employed, e.g. 0.01 to 10% and often 0.1% to 5%.

The compositions of this invention are alkaline and generally have a pH from about 10 to 12. It is necessary to add in the formulations the fatty acid in free acid form and neutralize *in situ* preferably with caustic soda (NaOH) or caustic potash (KOH), at the same time adjusting the pH to the desired level. A typical, preferred pH  $11 \pm 0.5$ .

According to the method of this invention the compositions are prepared by adding the following compounds to water with stirring in a suitable mixer and homogenizer at a temperature of 50 to 80 °C, e.g. 60 °C in the order given:

- 0.5 to 15% by weight of the composition of a  $\text{C}_6$  to  $\text{C}_{30}$  fatty acid;
- 0.5 to 15% by weight of the composition of a nonionic surfactant containing a  $\text{C}_{10}$ - $\text{C}_{20}$  linear aliphatic hydrocarbon chain and having the molecular configuration of an hydrophobe condensed with ethylene oxide, the number of oxyethyl groups in the nonionic surfactant ranging from 1 to 8;
- optionally 0.1 to 10% by weight of the composition of a viscosity modifier;
- 2 to 50% by weight of the composition of a particulate abrasive being a solid polymerisate derived from polyethylene, polypropylene, polystyrene, polyester, polyvinyl chloride, polyvinyl acetate or polymethyl methacrylate having a hardness not greater than homopolymeric methyl methacrylate and having an

average particle size ranging from 10 to 150  $\mu\text{m}$ ; and  
 an alkali metal and/or ammonium base for neutralization of said fatty acid;  
 at this point the temperature of the mixture is lowered to about room temperature; and then  
 adding

- 5 0.5 to 25% by weight of the composition of an electrolyte comprising a water-soluble inorganic or organic  
 alkaline builder salt followed by  
 1 to 15% by weight of the composition of a non-soap anionic surfactant containing a  $\text{C}_{10}$ - $\text{C}_{20}$  linear aliphatic  
 hydrocarbon chain and being selected from the group consisting of sulfonate and sulfate surfactants and  
 finally  
 10 where desired 0.05 to 5% of a hydrocarbon. Where no hydrocarbon is to be used one may, obviously, use  
 a non-hydrocarbon containing fragrance. The use, however, of a hydrocarbon material has proven desirable  
 for increased grease removal characteristics.

The following examples will serve to illustrate the present invention without being deemed limitative  
 thereof. Parts and percents are by weight unless otherwise indicated.

#### 15 Example I

A formulation of the following ingredients is prepared:

|   | %       | % A.I. |
|---|---------|--------|
| Distilled coconut fatty acids   | 2.0     | 2.0    |
| $\text{C}_{13}$ alcohol and 3 moles ethylene oxide  | 5.0     | 5.0    |
| White montmorillonite clay  | 0.8     | 0.8    |
| 25 Polyvinyl chloride powder (PVC) (beads of average particle<br>size of 60 $\mu$ made by an emulsion polymerization process) | 10.0    | 10.0   |
| 50% aqueous KOH   | 0.5     | 0.25   |
| 60% tetrapotassium pyrophosphate solution (TKPP)  | 10.0    | 6.0    |
| Potassium carbonate-granular, anhydrous ( $\text{K}_2\text{CO}_3$ )   | 0.5     | 0.5    |
| 30 60% $\text{C}_{14-17}$ paraffin (Na) sulfonate   | 3.33    | 2.0    |
| Perfume   | 0.5     | 0.5    |
| tap water   | balance |        |

- 35 The composition is prepared in the manner described previously. To the formula weight of water at  
 60 °C are added the fatty acid, nonionic, clay, abrasive and caustic potash with vigorous stirring. After a  
 uniform mixture is obtained, it is cooled to room temperature (20 °C) and the remaining components (in the  
 order listed) are added with stirring. A creamy, stable product results; the pH is about 11 and the viscosity  
 is about 1,100 mPas.

#### 40 Example II

Example I is repeated except that the following fatty acids are used in place of 2% distilled coconut  
 fatty acid:

|    |                             |      |
|----|-----------------------------|------|
| 45 | (a) lauric acid             | 2.0% |
|    | (b) palmitic acid           | 2.0% |
|    | (c) coconut oil fatty acids | 3.0% |
| 50 | (d) coconut oil fatty acids | 4.0% |
|    | (e) lauric-stearic (3:1)    | 3.5% |

#### 55 Example III

Example I is repeated using 5% sodium lauryl sulfate in place of the sodium paraffin sulfonate.

Example IV

Examples I and III are repeated separately replacing the TKPP and  $K_2CO_3$  with 4% soda ash (anhydrous  $Na_2CO_3$ ).

Example V

Each of the previous examples is separately repeated but in place of 5% nonionic there is used

(a) 3% nonionic

(b) 6% nonionic.

The product of Example I is used in a standardized test procedure to determine the degree of scratching against a plastic surface. This is compared with two commercial products. The procedure involves the use of a reciprocating moving sponge (spontex) containing 1 g of test product which is applied to a plastic tile and after 200 strokes the plastic tile is washed and the gloss is compared with that of the original. The tile used has an initial gloss reading of 79 and this is unchanged after the test with the product of Example I. The two commercial products gave readings of 72 and 73 demonstrating thereby some damage to the tile by the commercial materials and none by the composition of this invention.

Claims

1. A method for preparing a stable, liquid, aqueous, non-scratching scouring cleaning composition comprising the steps of

A) adding the following compounds to water at a temperature of 50 to 80 °C with stirring in a suitable mixer and homogenizer in the order given:

0.5 to 15% by weight of the composition of a  $C_6$ - $C_{30}$  fatty acid;

0.5 to 15% by weight of the composition of a nonionic surfactant containing a  $C_{10}$ - $C_{20}$  linear aliphatic hydrocarbon chain and having the molecular configuration of an hydrophobe condensed with ethylene oxide, the number of oxyethyl groups in the nonionic surfactant ranging from 1 to 8;

optionally 0.1 to 10% by weight of the composition of a viscosity modifier;

2 to 50% by weight of the composition of a particulate abrasive being a solid polymerizate derived from polyethylene, polypropylene, polystyrene, polyester, polyvinyl chloride, polyvinyl acetate or polymethyl methacrylate having a hardness not greater than homopolymeric methyl methacrylate and having an average particle size ranging from 10 to 150  $\mu m$ ; and

an alkali metal and/or ammonium base for neutralization of said fatty acid;

B) lowering the temperature of the mixture at this point to about room temperature; and

C) adding

0.5 to 25% by weight of the composition of an electrolyte comprising a water-soluble inorganic or organic alkaline builder salt followed by

1 to 15% by weight of the composition of a non-soap anionic surfactant containing a  $C_{10}$ - $C_{20}$  linear aliphatic hydrocarbon chain and being selected from the group consisting of sulfonate and sulfate surfactants and finally

where desired 0.05 to 5% of a hydrocarbon.

2. The method as defined in claim 1 wherein the fatty acid is a  $C_8$ - $C_{20}$  acid, the non-soap anionic contains a  $C_{12}$ - $C_{18}$  linear aliphatic hydrocarbon and the nonionic surfactant contains  $C_{10}$ - $C_{16}$  linear aliphatic hydrocarbon.

3. The method as defined in any of the preceding claims wherein the fatty acid is derived from coconut oil, the non-soap anionic is a paraffin sulphonate, the nonionic is a  $C_{10}$ - $C_{16}$  alcohol containing from 1 to less than 5 oxyethyl groups and the electrolyte comprises a polyphosphate.

4. The method as defined in any of the preceding claims wherein the abrasive is polyvinyl chloride.

5. The method as defined in any of claims 1 to 4 wherein the hydrocarbon is terpene.

6. The method as defined in any of claims 1 to 4 wherein the hydrocarbon is d-limonene.

7. The composition obtainable by the method according to any of the preceding claims.

8. The composition of claim 7 wherein the amount of fatty acid soap ranges from 1 to 5% by weight, the amount of non-soap anionic ranges from 1 to 5% by weight, the weight of nonionic ranges from 1 to 10% by weight, the amount of electrolyte ranges from 5 to 10% by weight, and the amount of abrasive ranges from 5 to 15% by weight.

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# Patentansprüche

1. Verfahren zur Herstellung einer stabilen, flüssigen, wäßrigen, nicht-kratzenden, scheuernden Reinigungszusammensetzung, bei dem:
  - 10 A) die folgenden Verbindungen zu Wasser mit einer Temperatur von 15 bis 80 °C unter Rühren in einem geeigneten Mischer und Homogenisator in den angegebenen Reihenfolgen gegeben werden:  
0,5 bis 15 Gew.-% der Zusammensetzung an C<sub>6</sub>-C<sub>30</sub>-Fettsäure,  
0,5 bis 15 Gew.-% der Zusammensetzung an nichtionischem Tensid, das eine lineare aliphatische C<sub>10</sub>-C<sub>20</sub>-Kohlenwasserstoffkette enthält und die Molekularkonfiguration einer hydrophoben Verbindung aufweist, die mit Ethylenoxid kondensiert ist, wobei die Zahl der Oxyethylgruppen in dem  
15 nichtionischen Tensid im Bereich von 1 bis 8 liegt,  
gegebenenfalls 0,1 bis 10 Gew.-% der Zusammensetzung an Viskositätsmodifizierungsmittel,  
2 bis 50 Gew.-% der Zusammensetzung an teilchenförmigem Scheuermittel, das ein festes Polymerisat ist, das sich von Polyethylen, Polypropylen, Polystyrol, Polyester, Polyvinylchlorid, Polyvinylacetat oder Polymethylmethacrylat ableitet, eine Härte nicht größer als homopolymeres Methylmethacrylat aufweist und eine durchschnittliche Teilchengröße im Bereich von 10 bis 150 µm besitzt, und  
Alkalimetall- und/oder Ammoniumbase zur Neutralisation der Fettsäure,  
B) die Temperatur der Mischung an diesem Punkt auf etwa Raumtemperatur erniedrigt wird und  
25 C) 0,5 bis 25 Gew.-% der Zusammensetzung an Elektrolyt, der wasserlösliches, anorganisches oder organisches Alkalibuildersalz umfaßt, und anschließend  
1 bis 15 Gew.-% der Zusammensetzung an anionischem Tensid, das keine Seife ist, eine lineare aliphatische C<sub>10</sub>-C<sub>20</sub>-Kohlenwasserstoffkette enthält und ausgewählt ist aus der Gruppe bestehend aus Sulfonat- und Sulfattensiden, und letztendlich,  
30 falls gewünscht, 0,05 bis 5 % eines Kohlenwasserstoffs zugegeben werden.
  2. Verfahren nach Anspruch 1, bei dem die Fettsäure eine C<sub>8</sub>-C<sub>20</sub>-Säure ist, das anionische Tensid, das keine Seife ist, einen linearen aliphatischen C<sub>12</sub>-C<sub>18</sub>-Kohlenwasserstoff enthält und das nichtionische Tensid einen linearen aliphatischen C<sub>10</sub>-C<sub>16</sub>-Kohlenwasserstoff enthält.  
35
  3. Verfahren nach einem der vorhergehenden Ansprüche, bei dem die Fettsäure sich von Kokosnußöl ableitet, das anionische Tensid, das keine Seife ist, Paraffinsulfonat ist, das nichtionische Tensid C<sub>10</sub>-C<sub>16</sub>-Alkohol ist, der 1 bis weniger als 5 Oxyethylgruppen enthält, und der Elektrolyt Polyphosphat umfaßt.  
40
  4. Verfahren nach einem der vorhergehenden Ansprüche, bei dem das Scheuermittel Polyvinylchlorid ist.
  5. Verfahren nach einem der Ansprüche 1 bis 4, bei dem der Kohlenwasserstoff Terpen ist.
  - 45 6. Verfahren nach einem der Ansprüche 1 bis 4, bei dem der Kohlenwasserstoff d-Limonen ist.
  7. Zusammensetzung, die nach dem Verfahren gemäß einem der vorhergehenden Ansprüche erhältlich ist.
  - 50 8. Zusammensetzung nach Anspruch 7, bei der die Menge an Fettsäureseife im Bereich von 1 bis 5 Gew.-% liegt, die Menge an anionischem Tensid, das keine Seife ist, im Bereich von 1 bis 5 Gew.-% liegt, das Gewicht an nichtionischem Tensid im Bereich von 1 bis 10 Gew.-% liegt, die Menge an Elektrolyt im Bereich von 5 bis 10 Gew.-% liegt und die Menge an Scheuermittel im Bereich von 5 bis 15 Gew.-% liegt.

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## Revendications

1. Procédé de préparation d'une composition liquide aqueuse stable de nettoyant pour récurer sans rayer, comprenant les étapes par lesquelles :
  - A) on ajoute les composés suivants, dans cet ordre, à de l'eau à une température de 50 à 80° C sous agitation dans un mélangeur et un homogénéisateur appropriés :
    - de 0,5 à 15 % en poids de la composition d'un acide gras en C<sub>6</sub>-C<sub>30</sub>;
    - de 0,5 à 15 % en poids de la composition d'un tensio-actif non ionique contenant une chaîne hydrocarbonée aliphatique linéaire en C<sub>10</sub>-C<sub>20</sub> et ayant la configuration moléculaire d'un agent hydrophobe condensé avec de l'oxyde d'éthylène, le nombre de groupes oxyéthyle dans le tensio-actif non ionique étant de 1 à 8;
    - éventuellement de 0,1 à 10 % en poids de la composition d'un agent modificateur de viscosité;
    - de 2 à 50 % en poids de la composition d'un abrasif particulaire sous forme d'un produit de polymérisation solide dérivé de polyéthylène, polypropylène, polystyrène, polyester, polychlorure de vinyle, polyacétate de vinyle ou polyméthacrylate de méthyle, dont la dureté n'est pas supérieure à celle d'un homopolymère de méthacrylate de méthyle et dont la taille de particules moyenne est de 10 à 150 µm; et
    - une base dérivée de métal alcalin et/ou d'ammonium pour la neutralisation dudit acide gras;
  - B) on abaisse la température du mélange ainsi obtenu jusqu'à environ la température ambiante; et
  - C) on ajoute
    - de 0,5 à 25 % en poids de la composition d'un électrolyte comprenant un sel adjuvant de détergence, alcalin, inorganique ou organique, hydrosoluble, puis
    - de 1 à 15 % en poids de la composition d'un tensio-actif anionique différent d'un savon, contenant une chaîne hydrocarbonée aliphatique linéaire en C<sub>10</sub>-C<sub>20</sub> et choisi parmi le groupe constitué des tensio-actifs de type sulfonate et sulfate; et enfin
    - si désiré, de 0,05 à 5 % d'un hydrocarbure.
2. Procédé tel que défini dans la revendication 1, dans lequel l'acide gras est un acide en C<sub>8</sub>-C<sub>20</sub>, le tensio-actif anionique différent d'un savon contient une chaîne hydrocarbonée aliphatique linéaire en C<sub>12</sub>-C<sub>18</sub> et le tensio-actif non ionique contient une chaîne hydrocarbonée aliphatique linéaire en C<sub>10</sub>-C<sub>16</sub>.
3. Procédé tel que défini dans l'une quelconque des revendications précédentes, dans lequel l'acide gras est dérivé d'huile de coprah, le tensio-actif anionique différent d'un savon est un sulfonate de paraffine, le tensio-actif non ionique est un alcool an C<sub>10</sub>-C<sub>16</sub> contenant de 1 à moins de 5 groupes oxyéthyle et l'électrolyte comprend un polyphosphate.
4. Procédé tel que défini dans l'une quelconque des revendications précédentes dans lequel l'abrasif est du polychlorure de vinyle.
5. Procédé tel que défini dans l'une quelconque des revendications 1 à 4 dans lequel l'hydrocarbure est un terpène.
6. Procédé tel que défini dans l'une quelconque des revendications 1 à 4 dans lequel l'hydrocarbure est le d-limonène.
7. Composition susceptible d'être obtenue par un procédé selon l'une quelconque des revendications précédentes.
8. Composition selon la revendication 7 dans laquelle la teneur en savon d'acide gras est de 1 à 5 % en poids, la teneur en tensio-actif anionique différent d'un savon est de 1 à 5 % en poids, la teneur en tensio-actif non ionique est de 1 à 10 % en poids, la teneur en électrolyte est de 5 à 10 % en poids, et la teneur en abrasif est de 5 à 15 % en poids.